

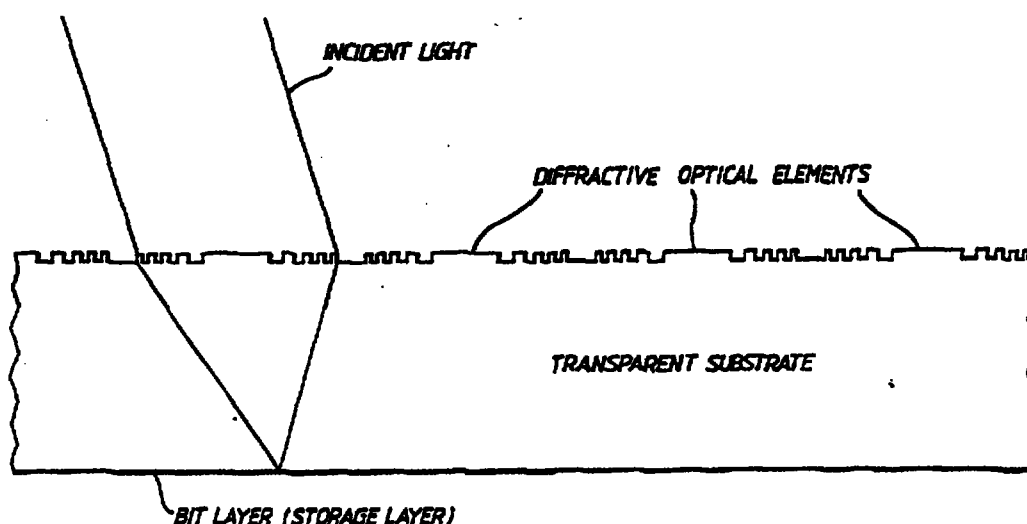
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(54) Title: OPTICAL DATA STORAGE MEDIUM AND METHODS FOR ITS WRITING AND READING



(57) Abstract

In an optical data storage medium with a storage area formed from a transparent, homogeneous base material and with a number of optically active structures at one side of the storage area, the optically active structures are diffractive optical elements which can focus a beam of light incident on the storage area on to one or more points in the storage area and/or a redirected beam of light or emitted light radiation from this or these points on to a point outside the optical storage medium. During writing/reading of data in the storage medium, the diffractive optical elements are used for focusing the write/read beam in order to generate a data carrying structure or read data stored in such a data carrying structure, respectively. By exploiting the special optical properties of diffractive optical elements, it is possible to achieve parallel writing/reading of data, possibly in several parallel storage layers in the optical storage medium or randomly distributed therein, the optical storage medium thus providing a genuine volumetric storage and a corresponding genuine volumetric accessing of the stored data.